

PURCHASE DESCRIPTION

FREQUENCY GENERATOR (20 Hz to 20 kHz)

FSNFR-D

- 1.0 GENERAL. This procurement requires a programmable audio frequency generator capable of generating low distortion, high amplitude level, sine and square wave signals over a frequency range of 20 Hz to 20 kHz.
- 2.0 CLASSIFICATION. The equipment shall meet the requirements of MIL-T-28800(), Type III, Class 5, Style E, Color R for Navy shipboard, submarine, and shore applications with the following modifications and exceptions:
- a. The Electromagnetic Interference requirements of MIL-T-28800 are limited to CE01(-20 dB), CE03, CS01, CS02 (0.05 to 100 MHz), CS06, RE01 (back panel search excluded), RE02 (14kHz to 10 GHz), and RS03.
 - b. The warm-up time is extended to one hour.
- 3.0 OPERATIONAL REQUIREMENTS. The equipment shall be capable of generating signals within the parameters and accuracies specified herein.
- 3.1 Frequency Characteristics
- 3.1.1 Range: At least 20 Hz to 20 kHz
 - 3.1.2 Resolution: Digital; at least 4 digits
 - 3.1.3 Stability
 - 3.1.3.1 Internal: Better than $\pm 2\text{pp}10^5/\text{h}$ (after 1 h warm-up)
 - 3.1.3.2 External: Equal to the external frequency standard
 - 3.1.3.2.1 External Reference: 1, 5 or 10 MHz signal, TTL compatible
 - 3.1.4 Spectral Purity (equal to or better than the limits specified below)
 - 3.1.4.1 Harmonics: -40 dBc
 - 3.1.4.2 Nonharmonics: -65 dBc
 - 3.1.4.3 Distortion: Less than 0.5% from 50 Hz to 20 kHz at 1 W; less than 1% from 20 Hz to 20 kHz at 3 W

3.2 Output Characteristics

3.2.1 Sine Wave Output

- 3.2.1.1 Amplitude (sine): 10 mV to 42 Vrms
- 3.2.1.2 Impedance: 600 ohms $\pm 10\%$
- 3.2.1.3 Accuracy: At least $\pm 5\%$ of indication at 1 kHz
- 3.2.1.4 Flatness: ± 1 dB (1 kHz ref)
- 3.2.1.5 Display: Digital in units of volts/millivolts
- 3.2.1.6 Resolution: 3 digits
- 3.2.1.7 Connector: Type BNC female

3.2.2 Squarewave Output: TTL levels, positive

- 3.2.2.1 Rise/Fall Time: Less than 50 ns

4.0 GENERAL REQUIREMENTS

- 4.1 Power: 115/230 Vac $\pm 10\%$, 50/60 Hz, 100 watts maximum

- 4.2 Lithium Batteries: Per MIL-T-28800, lithium batteries are prohibited without prior authorization. Requests for approving the use of lithium batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the specific model proposed.

- 4.3 Dimensions: The total volume of the unit shall not exceed 16,400 cm³ (1000 in³).

- 4.4 Weight: The total weight of the unit shall not exceed 6.8 kg (15 lb).

- 4.5 Calibration Interval: The calibration interval shall be 12 months minimum. The equipment shall be within all accuracy requirements specified herein, with a 72% or greater confidence factor following a calibration interval of 12 months.

- 4.6 Remote Control: Unit must be controllable via the IEEE-488() interface bus; as a minimum, all front panel functions (except AC power) must be remotely controllable when the unit operates as a listener on the bus.